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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,776	09/27/2001	William C. Norris	IN-5384	3006

26922 7590 08/13/2002

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EXAMINER	
UHLIR, NIKOLAS J	
ART UNIT	PAPER NUMBER
1773	

DATE MAILED: 08/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-7

Office Action Summary	Application No.	Applicant(s)	
	09/964,776	NORRIS ET AL.	
	Examiner	Art Unit	
	Nikolas J. Uhlir	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-32 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Examiners Note

1. The applicant's amendment, filed 7/26/02 has only been partially entered, as the applicant has both cancelled and amended claim 33 in this amendment. Accordingly, claim 33 has been canceled, and the amended version of this claim has not been entered. All other amendments have been entered into the file.

Claim Objections

2. Claim 21 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In the instant case, all of the limitations of claim 21 have been incorporated into claim 1 by the amendment filed 7/26/02. Thus, claim 21 as now presented a is a duplicate of claim 1, as it does not introduce any further limitations in the parent claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-8, 10-11, 15-26, and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. (US5958125) in view of Clark et al. (US5552487).

Schmid et al. ('125) teaches goniochromatic luster pigments based on multiply coated, non-metallic, platelet-shaped substrates that are at least partially transparent to visible light (Column 1, lines 1-4). This pigment comprises a non-metallic substrate, a first coating having a refractive index less than or equal to 1.8, a 2nd reflecting, non-selectively or selectively absorbing coating that is partially transparent to visible light, and an optional outer protective layer (column 1, line 10-16). Suitable materials for use as the pigment substrate include platelet shaped iron oxide, silicatic platelets, glass flakes, and coated mica flakes (column 2, line 46-column 3, line 23). These substrates typically have a particle size between 1-200 μm. Suitable materials for forming the first coating over the pigment substrate include magnesium fluoride, aluminum phosphate, and metal oxides such as silicon oxide, silicon oxide hydrate, aluminum oxide, aluminum oxide hydrate, and mixtures thereof (column 3, lines 61-65). Suitable materials for forming the 2nd (reflecting) coating over the first coating include non-selectively absorbing materials such as iron, and chromium, oxides such as Fe_3O_4, Cobalt oxide and vanadium oxide (column 4, lines 8-41), and selectively absorbing materials such as Fe_2O_3, Cr_2O_3, Ti_2O_3, and V_2O_5 (column 4, lines 48-67). Materials suitable for the optional outer coating include silicon oxide, silicon oxide hydrate, aluminum oxide, aluminum oxide hydrate, TiO_2, Fe_2O_3, and Cr_2O_3 (column 6, lines 29-40). Each of the coatings on the pigment substrate is uniform, film-like, and covers the

substrate on all sides (column 6, lines 63-67). Because the coatings are uniform and cover the entire substrate, the layered coating structure on the pigment substrate must be symmetrical. Finally, Schmid et al. ('125) teaches that depending on the composition of the pigment platelets, interference, reflection, and absorption phenomena create angle dependent color and lightness effects (column 1, lines 26-29). Therefore the examiner takes the position that the mode of interaction between the pigment and the substrate onto which it is ultimately coated is a results effective variable. One would select different pigment compositions to achieve angle dependent color and lightness effects originating from the mode of interaction desired. Lastly Schmid et al. ('125) teaches that these pigments are advantageously used for many purposes, including automotive coatings (column 10, lines 28-35).

Schmid et al. ('125) does not teach a coating system that comprises a powder based binder containing a color effect-providing pigment, wherein the binder is a resin having a functional group and the coating system is disposed on a substrate having a first color effect. Further Schmid et al. ('125) does not teach a coating system having a resin binder selected from the group consisting of acrylic, epoxy, phenolic, polyester, and urethane resins. Additionally, Schmid et al. ('125) does not teach a coating system having a resin binder that contains a cross-linking agent selected from the group consisting of aminoplasts, blocked isocyanates, polycarboxylic acids, acid anhydrides, polyamines, and combinations thereof. Further, Schmid et al. ('125) does not teach a coating in which the pigment substrate and inorganic coating interact with the first color effect of the substrate, resulting in a second color effect that is different by at least ΔL

20.0, Δa 10.0, and Δb 15.0 as measured by CIELab color space. Schmid et al. ('125) also does not teach a coating based on a powder based clear-coat applied on a substrate to produce a second color effect. Further, Schmid et al. ('125) does not teach a coating system wherein .1-10 parts by weight of a color effect pigment are contained in the binder. Schmid et al. ('125) also does not teach a coating system in which the substrate to be coated is coated with an undercoat/basecoat/primer/electrocoat layer prior to being coated with the pigment containing binder. Lastly, Schmid et al ('125) does not teach using an automotive body panel as the substrate to be coated with the pigment containing binder.

Clark et al. teaches a method for coating a metal substrate with a thermosetting powder composition. This powder coating is a pigmented or clear coat powder composition that is preferably applied over a cured electrocoat. This powder coating includes a polymeric resin and a suitable cross-linking agent (column 1, lines 36-45). Materials suitable for use as the polymeric resin include polyester, acrylic, and epoxy resins. Cross-linking agents that are useful include acid anhydrides, aminoplasts, and blocked aliphatic and aromatic diisocyanates (column 2, lines 15-36). In addition to the polymeric resin and cross-linking agent, these coatings can contain 0-35% wt. pigments (column 4, lines 16-19). This powder coating composition can be directly applied to a metal substrate such as aluminum or steel (column 4, lines 27-29). Although Clark et al. does not specifically teach using this coating system on an automotive body panel, it is generally well known that automotive body panels that are coated with a decorative or protective coating can been made out of a metal such as aluminum or steel. Prior to

coating with the above powder coating substrate, the metal substrate is typically provided with a pigmented primer-surfacer layer. This primer-surfacer can be applied to a bare metal substrate, or to a substrate that has a thin cured or uncured electrodeposited primer layer on its surface (column 4, lines 38-55). Although not specifically referred to as a color-providing basecoat, this primer-surfacer layer is pigmented, and so necessarily meets the limitations of claim 32. Further, this coating composition can have a non-pigmented clear-coat applied over the powder coating composition (column 4, lines 55-60). Additionally, the powder coating composition described above contains a flow control agent such as an aliphatic or aromatic crystalline compound (column 1, lines 65-67). The incorporation of this flow control agent results a powder coating composition capable of forming a film with marked improvement in film smoothness (column 1, lines 55-61).

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate the luster pigment composition taught by Schmid et al. ('125) into the powder coating composition taught by Clark et al.

One would have been motivated to make this modification due to the both the marked improvement in film smoothness and angle dependent color and lightness effects of the resultant film coating that one would expect to gain as a result.

In regards to claims 1 and 21, the examiner takes the position that coating composition resulting from the combination of the Clark et al. and Schmid et al ('125) patents will necessarily meet the CIELab color space limitations required by these claims. The applicant presents an example on pages 17 and 18 of the specification of a

coating system coated onto a bare aluminum substrate. The coating system comprises a powder based binder of polyester and polyurethane, a blocked isocyanate cross-linking agent, and 5% by weight of a color effect pigment known as Variocrom® magic Purple K 5511. This coating composition resulted in a 2nd color effect differing from the first color effect of the substrate by ΔL 21.96, Δa 14.08, and Δb 19.36 according to CIELab color space. Variocrom® magic Purple K 5511 is defined by the applicant on page 13 of the specification as a color effect pigment having the structure $Fe_2O_3/SiO_2/Fe_2O_3/SiO_2/Fe_2O_3$. The pigments described by Schmid et al. ('125) include pigments that have Fe_2O_3 as a base substrate (Schmid Column 13, claim 3, and column 2, lines 51-55), an intermediate coating of SiO_2 (column 13, claims 1 and 6, and column 3, line 61-65), and an outer coating of Fe_2O_3 (Column 13, claims 1 and 7, and column 4, lines 48-50). The powder coating composition described by Clark et al. can comprise a polyester resin, a isocyanate cross-linking agent, and 0-35% wt. of a pigment (Clark, column 2, lines 15-36 and column 4, lines 12-15). Further this composition can be applied to a bare metal substrate such as aluminum (Clark, column 4, lines 26-55). Although the Clark et al. composition does not state that urethanes are used in the binder, the examiner takes the position that the binder is transparent and that the color effects required by claim 21 are a result of the pigment contained in the binder. Thus, because a coating composition comprising a similar binder resin, an identical cross-linking agent, and the same amount of an identical pigment could be prepared, the material resulting from the combination of these two references necessarily meets the color and lightness requirements stated in claim 21.

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al ('125) as modified by Clark et al. above, further in view of Williams et al. (US5379947).

Schmid et al ('125) as modified by Clark et al. above teaches all of the limitations for claim 27, except for those listed below.

Schmid et al ('125) as modified by Clark et al. does not teach a coating system that has a second coating disposed over a film-coating layer, so that the coating system has a 20^0 gloss of at least 65, as defined by ASTM D523-89.

Williams et al. teaches a coating composition that comprises a powder slurry (column 2, lines 24-25) The powder slurry comprises a powder material dispersed in a solvent such as water (column 2, lines 25-46). Suitable materials for the powder include resins such as an acrylic, epoxy, or phenolic resin (column 3, lines 32-38). These films are appropriate for use as basecoats and clearcoats with a high degree of gloss (column 4, lines 15-19). In example 2 (column 4), Williams et al. teaches a coating composition that comprises an acrylic resin, a blocked isocyanate, and other additives. This coating composition had a 20^0 gloss of 74.9 when it was applied to cold rolled steel (column 6, line 65).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the powder slurry coating composition as described by Williams et al. as the clear coat material disposed over the coating system described by Schmid et al. ('125) as modified by Clark et al. above.

One would have been motivated to make such a modification due to the high 20^0 gloss one would expect to obtain in the resulting film.

7. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al (US5607504) in view of Clark et al.

Schmid et al. ('504) teaches multiply coated metallic luster pigments that comprise a metallic substrate, a colorless low refractive index coating, a second selectively absorbing high refractive index coating, and an optional third selectively absorbing coating of high or low refractive index (column 2, lines 19-28). Suitable metallic substrates include metals such as steel and aluminum in platelet form (column 3, lines 54-59). Suitable materials for the low (<1.8) refractive index coating include silicon oxide, silicon oxide hydrate, and aluminum oxide/oxide hydrate (column 2, lines 29-31 and 43-46). These pigments give angle dependent color effects dependant on absorption, reflection and interference phenomena (column 1, lines 20-25).

Schmid et al. ('504) does not teach a coating system in which a colored substrate is coated with a coating composition, wherein the coating composition comprises a resin binder having a functional group, and the resin binder contains a cross-linking agent and a color effect-providing pigment comprising a pigment substrate coated with an inorganic material having an index of refraction less than 1.8.

Clark et al. teaches a method for coating a metal substrate with a thermosetting powder composition. This powder coating includes a polymeric resin and a suitable cross-linking agent (column 1, lines 36-45). Materials suitable for use as the polymeric resin include polyester, acrylic, and epoxy resins. Cross-linking agents that are useful

include acid anhydrides, aminoplasts, and blocked aliphatic and aromatic diisocyanates (column 2, lines 15-36). In addition to the polymeric resin and cross-linking agent, these coatings can contain 0-35% wt. pigments (column 4, lines 16-19). This powder coating composition can be directly applied to a metal substrate such as aluminum or steel (column 4, lines 27-29). Additionally, the powder coating composition described above contains a flow control agent such as an aliphatic or aromatic crystalline compound (column 1, lines 65-67). The incorporation of this flow control agent results a powder coating composition capable of forming a film with marked improvement in film smoothness (column 1, lines 55-61).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate the multiply coated metallic luster pigments described by Schmid et al. ('504) into the powder coating composition described by Clark et al.

One would have been motivated to make this modification due to the angle dependent color effects and improved smoothness of the resultant film one would expect to gain as a result.

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmid et al. (US5607504) as modified by Clark et al. above, further in view of Suzuki et al. (JP8268345)

Schmid et al. ('504) as modified by Clark et al. above teaches all of the limitations of claims 13 and 14, except for those listed below.

Schmid et al. ('504) as modified by Clark et al. above does not teach using stainless steel as the pigment substrate. Further Schmid et al. ('504) as modified by Clark et al. does not teach using a stainless steel alloy that contains between 1-30 parts by weight of chromium based on 100 parts by weight of the alloy.

Suzuki et al. teaches an interference pigment that comprises stainless steel flake coated with titanium dioxide and titanium dioxide hydrate (page 4, section 0006. The stainless steel flake has a particle size between 20-30 μm and is made from the SUS316L alloy of stainless steel (page 6, section 12). SUS316L is a well known stainless steel alloy that comprises, .03% Carbon, 2% manganese, .045% phosphorous, .03% sulfur, 1% silicon, 17% chromium, 12% nickel, and 2.5% molybdenum based on 100 parts by weight of the entire alloy. Additionally, Suzuki et al. teaches that this interference pigment can be dispersed into a resin such as an epoxy, polyester or an acrylic to form a paint (page 6, section 0013). These stainless steel substrates are superior in safety, stability, light resistance, solvent resistance, heat resistance, and have metallic luster.

Although Suzuki et al. only discloses coating these substances with a high index material such as titanium dioxide, this does not preclude coating these substrates with other lower index materials. Suzuki et al. and Schmid et al ('504) are teaching the manufacture of similar compounds, namely interference pigments that have metallic luster.

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use stainless steel flakes as disclosed by Suzuki et al.

as the pigment substrate for the metallic luster pigment composition described by Schmid et al. as modified by Clark et al above.

One would have been motivated to make such a modification due to the increase in stability, light resistance and solvent resistance of the pigment composition in the coating one would expect to gain as a result.

Response to Arguments

In response to the office action dated 2/26/02, the applicant made the following arguments (summarized):

- Applicants submit that the claims as amended are patentable over the cited references for the reason that the powder coating of the present invention demonstrates exceptional hiding when applied in a single layer, in contrast to a powder coating containing mica or aluminum pigment applied in a single layer. This is defined in the amended claims by the ΔL, Δa, and Δb values set forth in amended claims 1 and 33.

This argument is not persuasive. Regarding the ΔL, Δa, and Δb values required by claim 1, the applicant is directed to the section of this and the prior office action wherein the examiner "takes the position that coating composition resulting from the combination of the Clark et al. and Schmid et al ('125) patents will necessarily meet the CIELab color space limitations required by these claims. The applicant presents an example on pages 17 and 18 of the specification of a coating system coated onto a bare aluminum substrate" etc... This section clearly describes how the combination of Clark et al. and Schmid et al. results in a pigmented coating composition that matches the materials cited by the example presented by the applicant on pages 17 and 18 of the specification. The materials cited by the example meet the CIELab color space requirements of claims 1 and 21. As the applicant has presented no argument relating to how the combination of Clark et al. and Schmid et al. do not meet these limitations or

do not match the example on pages 17 and 18 of the specification, the rejection is maintained.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

nju
August 12, 2002

Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700